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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|--------------------------------------|----------------------------------|
| Office Action Summary | Application No. 10/643,359 | Applicant(s) AN ET AL. |
| | Examiner Phuong-Thao Cao | Art Unit 2164 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 11 August 2008.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,3,4,6-11,14,15 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,3,4,6-11,14,15 and 18-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

1. This action is in response to Amendment filed on 08/11/2008.
2. Claims 1, 4, 6, 7, 14, 18-20 have been amended, and claims 2, 5, 12, 13, 16 and 17 were previously cancelled. Currently, claims 1, 3, 4, 6-11, 14, 15 and 18-20 are pending.

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Response to Amendment

3. Amendment to drawings is effective to overcome the objection to the drawings as presented in the previous office action. Therefore, the previous objection to drawings has been withdrawn.

4. Amendments to the Specification have been received and entered. However, this amendment to the specification includes an incorrect information regarding paragraph [26]. Paragraph [26] describes FIG. 4 instead of FIG. 3 as recently amended. Therefore, this action maintains an objection to the specification based on Amendment to the Specification submitted on 08/11/2008.

4. Amendments to claims 1, 6, 14 and 18-20 are not effective to overcome the 112 (1st and 2nd paragraph) and 101 rejections in the previous office action. Therefore, the previous 112 and 101 rejections are maintained.

5. In view of amendments to the claims (claims 18 and 19), Examiner interprets the recited “computer-readable storage medium” as storage device and not including transmission medium and/or any forms of carrier waves (i.e., signals) as disclosed in specification, paragraphs [49]-[51]. In view of this interpretation, “computer-readable storage medium” is directed to a statutory subject matter and the 101 rejection to claims 18 and 19 has been withdrawn.

Specification

6. The current specification is objected to because the amendment to the paragraph [26] submitted on 08/11/2008 includes an incorrect information. Paragraph [26] describes FIG. 4, not FIG. 3 as recently presented in the Amendments to the Specification. In addition, paragraph [14] includes the following incorrect information: in line 5, "node 401 with bounding box 301" should be "node 401 with bounding box 307"; in line 6, "for point 101" should be "for point 133"; and in line 8, "the bounding boxes 121 and 301" should be "the bounding boxes 121 and 307".

Claim Objections

7. Claims 14, 15 and 20 are objected to because of the following informalities:

Regarding claim 14, language "would overlap" (line 7) should be changed to "overlap" to clarify the occurrence of the overlap.

Regarding claim 15, "The according to claim 14" (line 1) should be "The method according to claim 14".

Regarding claim 20, missing a comma (,) between "the buddy node" and "a buddy child node" in line 12 and language "would overlap" (line 8) should be changed to "overlap" to clarify the occurrence of the overlap. Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 14, 15 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim14, the newly previously amended feature of "partitioning the entries of the clustered children of the node and the buddy node into a plurality of groups, wherein at least one of the groups includes a child node of the cluster children of the node and the buddy child node associated with the child node" are new subject matter which was not disclosed in the specification.

The specification, Fig. 5, step 513 and paragraphs [39] and [41], discloses the partitioning step as partitioning clustered children of the node and the buddy node (which also mean partitioning clustered entries of the node and the buddy node wherein each entry represents a child node). However, there is no disclosure of partitioning *the entries of the clustered children of the node and the buddy node*. Also see paragraph [20], which is believed to describe the method/software as recited in claims 14 and 20, which discloses that children of the node and children of the buddy are clustered and partitioned into a plurality of groups, wherein at least one of the groups include a child node of the cluster node, a buddy child node associated the child node and one or more of the entries. Thus, the specification discloses a child node included in each group is a child node of cluster node (wherein the cluster node is a combination of the node and the buddy node, at the same level with the node and the buddy node, and having clustered children of the node and the buddy node as its children), NOT child node as a child node of cluster children of the node and the buddy node (which means equivalent to grandchild node of the node and the buddy node) as recited.

Claim 15 is rejected as incorporating the deficiencies of rejected claim 14 upon which it depends.

Regarding claim 20, the newly previously amended feature of “wherein at least one of the groups includes a child node of the cluster children of the node and the buddy child node associated with the child node” (lines 11-1 are new subject matter which was not disclosed in the specification).

The specification, Fig. 5, step 513 and paragraphs [39] and [41], discloses the partitioning step as partitioning clustered children of the node and the buddy node (which also mean partitioning clustered entries of the node and the buddy node wherein each entry represents a child node). Also see paragraph [20], which is believed to describe the method/software as recited in claims 14 and 20, which discloses that children of the node and children of the buddy are clustered and partitioned into a plurality of groups, wherein at least one of the groups include a child node of the cluster node, a buddy child node associated the child node and one or more of the entries. Thus, the specification discloses a child node included in each group is a child node of cluster node (wherein the cluster node is a combination of the node and the buddy node, having clustered children of the node and the buddy node as its children, and at the same level with the node and the buddy node), NOT child node as a child node of cluster children of the node and the buddy node (which means equivalent to grandchild node of the node and the buddy node) as recited.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1, 3, 4, 6-11, 14, 15 and 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the recited steps of “selecting nodes...” and “inserting the plurality of entries...” are confused in terms of their relationship and order of occurring. The step of

"selecting nodes of the index each having entries, wherein the selection is based on that the nodes of the index overlap when the plurality of entries are inserted into a first one of the nodes of the index, wherein the selected nodes of the index are sibling nodes" suggests that the selection occurs after inserting the plurality of entries into one node of the index. However, the newly amended step of "inserting the plurality of entries within the first one of the selected nodes of the index" suggests that selecting nodes should be occurred before inserting the plurality of entries into one of the selected nodes as recited. In addition, the "selecting step" recites "a first one of the nodes of the index" but there is no indication that "a first one of the nodes of the index" is selected as one of the selected nodes, so it is unclear if "the first one of the selected nodes of the index" in the inserting step refers to "a first one of the nodes of the index" as recited in previous selecting step. As a result, the claimed invention is unclear.

Regarding claim 1, Applicant is advised to amend "such that overlap is reduced" (line 12) in another way to positively recite features of the claimed invention (e.g., to reduce overlap).

Regarding claims 3 and 4, these claims are rejected as incorporating the deficiencies of claim 1 upon which they depend.

Regarding claim 6, "the entries" in the distributing step (line 8) may be interpreted as relating to entries of each of the selected children (line 4) while it means to refer to the plurality of entries provided for inserting. Therefore, "the entries" recited in the distributing step (line 8) should be changed to "the plurality of entries" in order to clarify this confusion.

Regarding claim 6, it is unclear what "children of the index" means. An index may have a plurality of nodes and a node may have a parent and one or many children. It is believed that Applicant intends to claim "children of the node in the spatial index" as recited in line 3. In particular, "a first one of the selected children of the index" (line 6), "the selected children of the index" (line 7) and "a partitioned child of the index" (line 10) should be amended to "a first one of the selected children of the node in the spatial index", "the selected children of the node in the spatial index" and "a partitioned child of the node in the spatial index" respectively. In addition, children of a node in an index are certainly sibling.

Regarding claim 7, Applicant is advised to amend "such that overlap of bounding boxes for objects in the spatial index is reduced" (line 12) in another way to positively recite features of the claimed invention (e.g., to reduce amount of overlap of bounding boxes for objects in the spatial index).

Claims 8-11 are rejected as incorporating the deficiencies of rejected claim 6 and/or 7 upon which they depends.

Claim 14 recites the limitation "the selection of the children" in line 6 and the limitation "the selected children" in line 8. There is insufficient antecedent basis for these limitations in the claim. In addition, language "so that overlap among bounding boxes associated with the groups

is reduced" (line 13) should be considered to amend to actively recite the functionality (i.e., to reduce the overlap among bounding boxes associated with the groups).

Claim 15 is rejected as incorporating the deficiencies of rejected claim 14 upon which it depends.

Regarding claim 18, the recited steps of "selecting nodes..." and "inserting the plurality of entries..." are confused in terms of their relationship and order of occurring. The recited step of "selecting nodes of the index each having entries, wherein the selection is based on that the nodes of the index overlap when the plurality of entries are inserted into a first one of the nodes of the index, wherein the selected nodes of the index are sibling nodes" suggests that the selection occurs after inserting the plurality of entries into one node of the index. However, the newly amended step of "inserting the plurality of entries within the first one of the selected nodes of the index" suggests that selecting nodes should be occurred before inserting the plurality of entries into one of the selected nodes as recited. In addition, the "selecting step" recites "a first one of the nodes of the index" but there is no indication that "a first one of the nodes of the index" is selected as one of the selected nodes, so it is unclear if "the first one of the selected nodes of the index" in the inserting step refers to "a first one of the nodes of the index" as recited in previous selecting step. As a result, the claimed invention is unclear.

Regarding claim 19, "the entries" in the distributing step (line 10) may be interpreted as relating to entries of each of the selected children (line 6) while it means to refer to the plurality

of entries provided for inserting. Therefore, "the entries" recited in the distributing step (line 10) should be changed to "the plurality of entries" in order to clarify this confusion.

Regarding claim 19, it is unclear what "children of the index" means. An index may have a plurality of nodes and a node may have a parent and one or many children. It is believed that Applicant intends to claim "children of the node in the spatial index" as recited in line 5. In particular, "a first one of the selected children of the index" (line 8), "the selected children of the index" (line 8) and "a partitioned child of the index" (line 12) should be amended to "a first one of the selected children of the node in the spatial index", "the selected children of the node in the spatial index" and "a partitioned child of the node in the spatial index" respectively. In addition, children of a node in an index are certainly sibling.

Claim 20 recites the limitation "the selection of the children" in line 7 and the limitation "the selected children" in line 8. There is insufficient antecedent basis for these limitations in the claim. In addition, language "so that overlap among bounding boxes associated with the groups is reduced" (line 14) should be considered to amend to actively recite the functionality (i.e., to reduce the overlap among bounding boxes associated with the groups).

Claim Rejections - 35 USC § 101

12. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

13. Claim 20 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding claim 20, claim 20 is directed to “manufacture” claim wherein a statutory “manufacture” in computer programming field should include instructions (i.e., program codes) stored in some appropriate medium. The “tangible computer-readable medium” is not specified in the specification. Therefore, the “tangible computer-readable medium” is generally interpreted as a computer-readable medium which is tangible. According to Applicant's specification, paragraph [51], computer-readable media may include non-volatile media, volatile media, and transmission media wherein transmission media such as coaxial cable, copper wire and fiber optics while being tangible are not appropriate media for storing instructions. Therefore, the recited “tangible computer-readable medium”, which is not limited to appropriate media, is directed to non-statutory subject matter.

Allowable Subject Matter

14. Claims 1, 3, 4, 6-11, 14, 15, 18 and 19 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.
15. The following is a statement of reasons for the indication of allowable subject matter:

The claimed invention is directed to a method and software for bulk insertion of data into a spatial or other multidimensional-keyed index that includes partially reorganizing the selected portions of the index while inserting data in bulk.

The closest prior art of record, Chen ("Merging R-Trees: Effective Strategies for local Bulk Insertion", 1999) teaches an method for bulk insertion which includes building a small tree from data for insertion, locating/preparing a suitable location/node in the index (i.e., a tree) for insertion, then inserting the small tree into the located location in the index. However, the prior art of record fails to teach or suggest the partition and reorganization of selected nodes (including reorganizing the entries in selected nodes) in the index after the data (plurality of entries) is inserted in the selected nodes as recited in independent claims 1, 6, 14 and 18-20.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong-Thao Cao whose telephone number is (571)272-2735. The examiner can normally be reached on 8:30 AM - 5:00 PM (Mon - Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571) 272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hung T Vy/
Primary Examiner, Art Unit 2163

Phuong-Thao Cao, Examiner
Art Unit 2164
October 28, 2008